

WBS 1.7

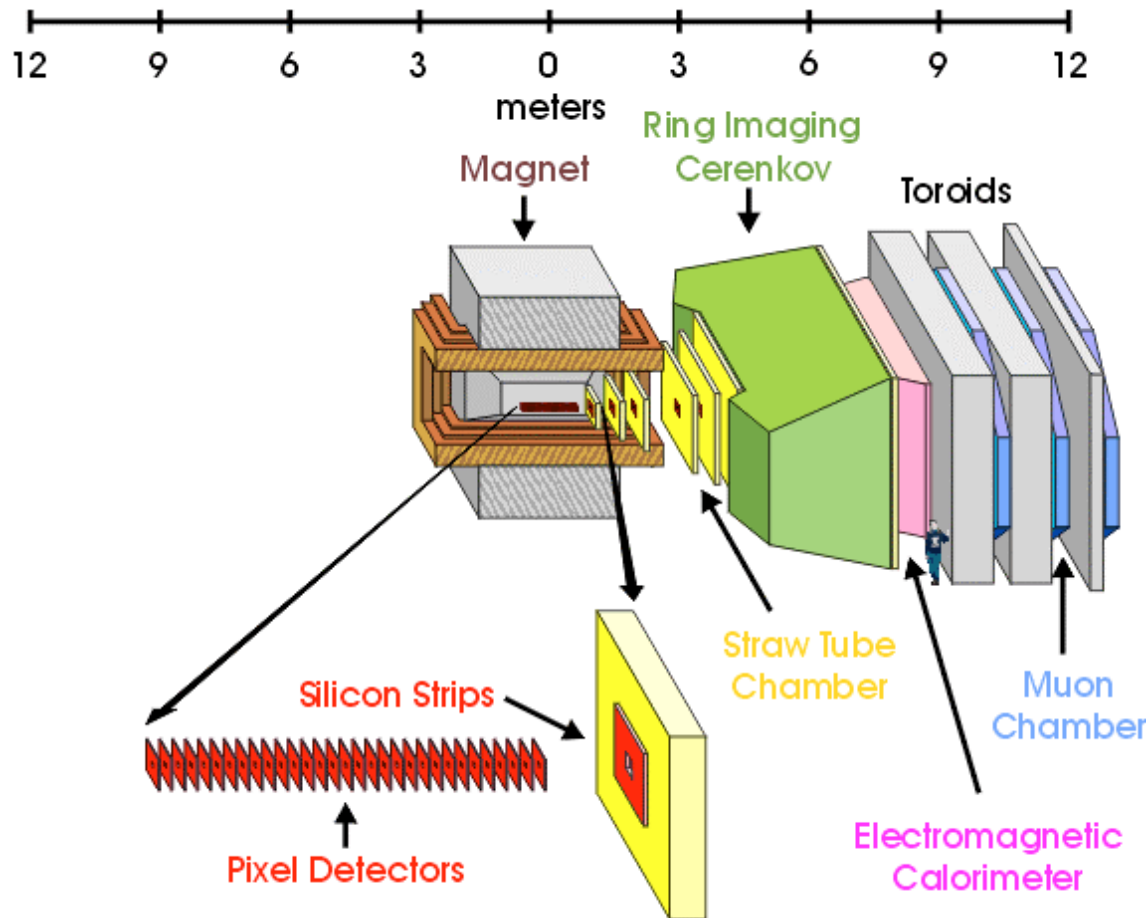
Staged Schedule

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May 27, 2004

- The Micro-Strip project was found by the CD-1 Review in very good shape.
 - The scope was evaluated “well defined and understood”,
 - the cost estimate “credible and provided with adequate contingency” and
 - the schedule “credible, with Critical-Path identified and allowing for 6 month float”.
- For this reason, we decided to keep the same schedule and the same funding profile.
- In the new scenario of staging, since the installation milestones have been changed, we suddenly gained an additional 3 month float on the most critical activities and can improve in general our schedule.
 - Now, the resulting float is 186 days, i.e. about 9 calendar months.

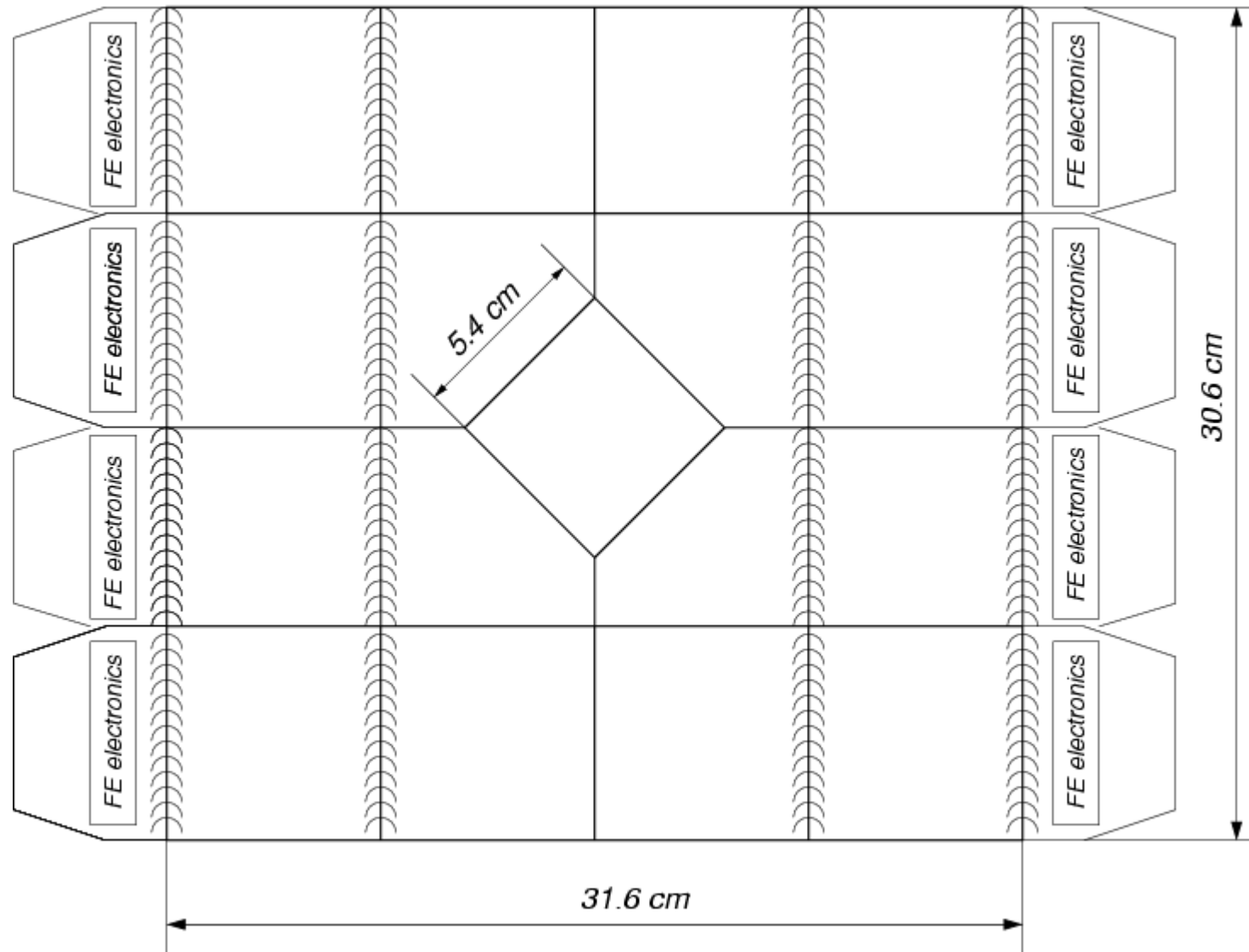
- and something very important happened just after CD-1
 - We have been approved by INFN and will be funded for the construction of the Micro-Strip system with a profile which should remove from our schedule any residual funding-limitation.
 - The condition INFN is asking for to begin to fund us is that the BTeV construction be approved by DOE too.
 - In this scenario, we can increase our float by other 3 months, for a total of 1 year about, if DOE approval would come by the end of this year, 2004.



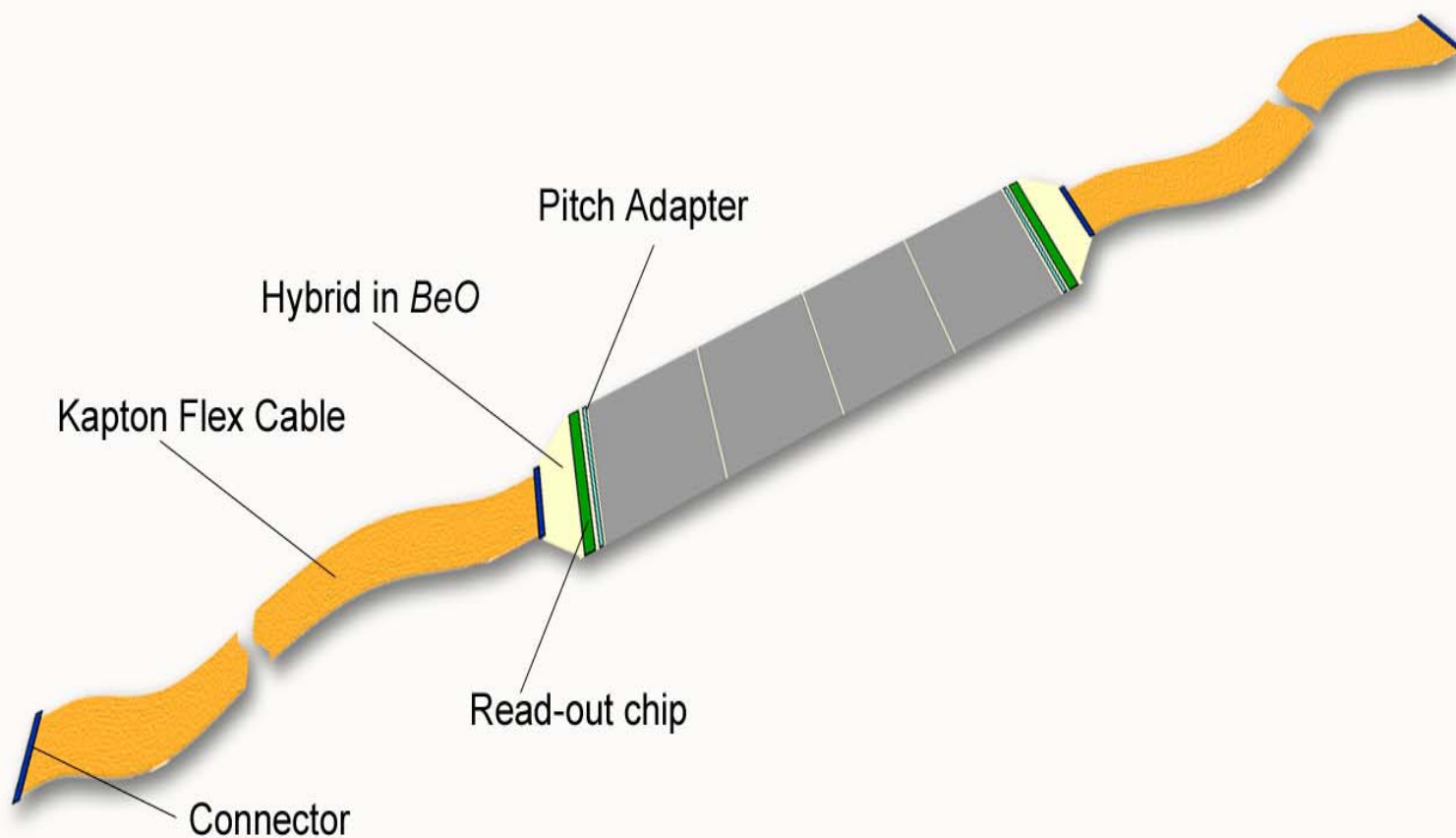
- $30 \times 30 \text{ cm}^2$ planes
- $100 \text{ }\mu\text{m}$ pitch
- $\sim 130,000$ channels

- 7 stations of X, U and V views distributed along Z
 - 6 stations between pixels and RICH
 - The last just after the RICH and before the EM

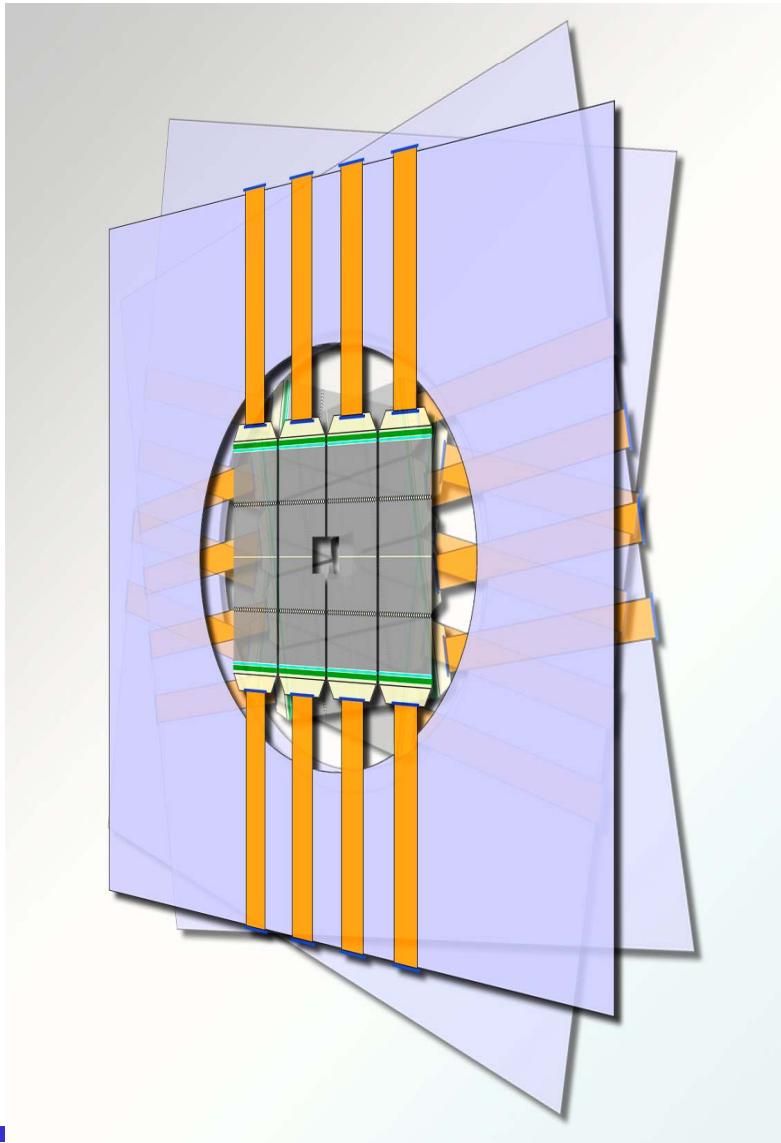
How does it look like?



Ladder Configuration



..., which form planes and stations.



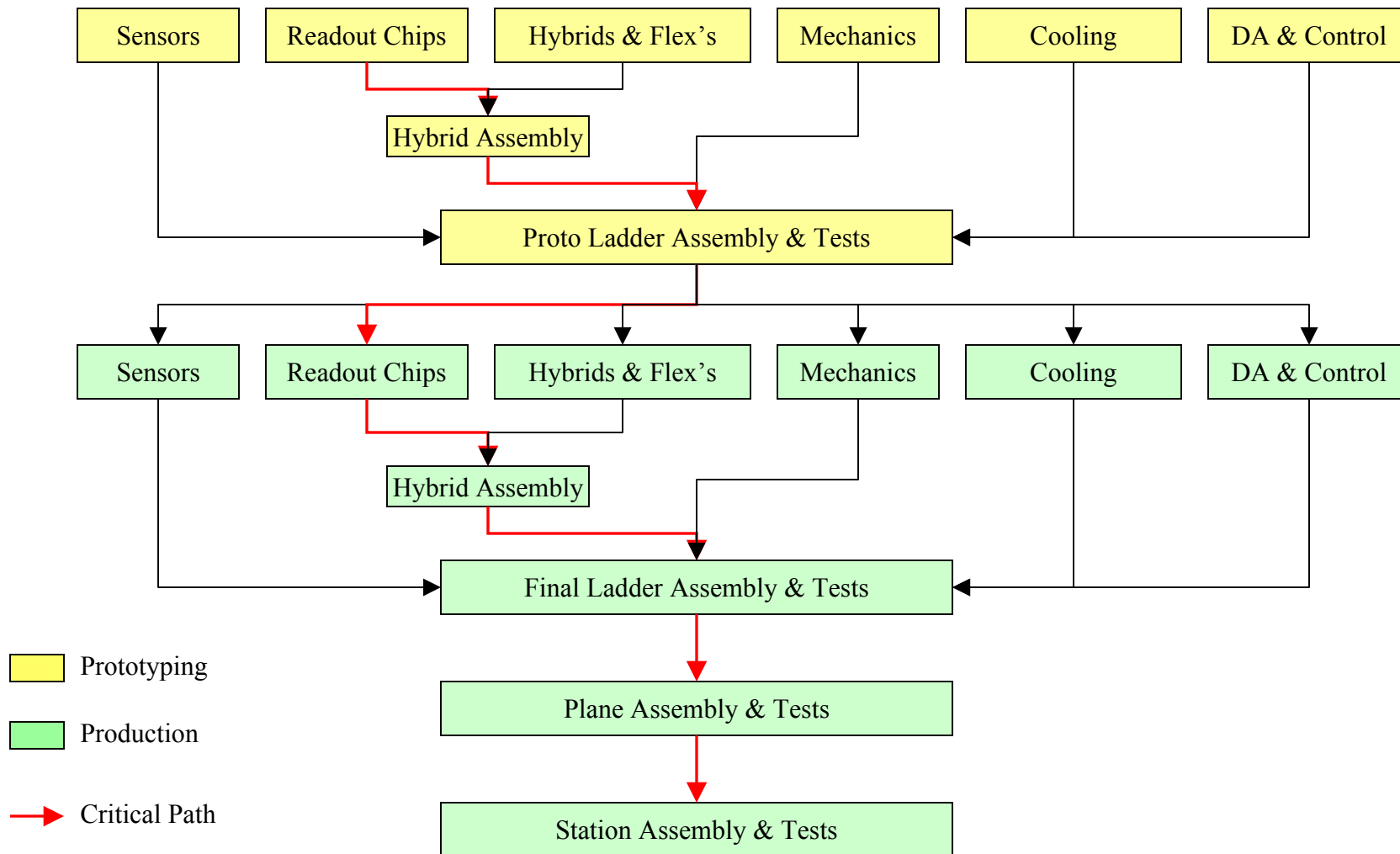
3 views:

X: 0° (horizontal)

U: $90^\circ + 11.3^\circ$

V: $90^\circ - 11.3^\circ$

Description of Project Flow

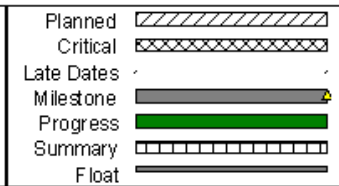

















- Stage 1
 - Installation of only 4 of the 7 stations
 - Station 1,2,5 and 6
 - Since micro-strip “need by” milestones moved from June 1, 09
 - Now our minimum float is 186 days
- Stage 2
 - Complete installation
 - Float for Stage 2 installation is 350 days.

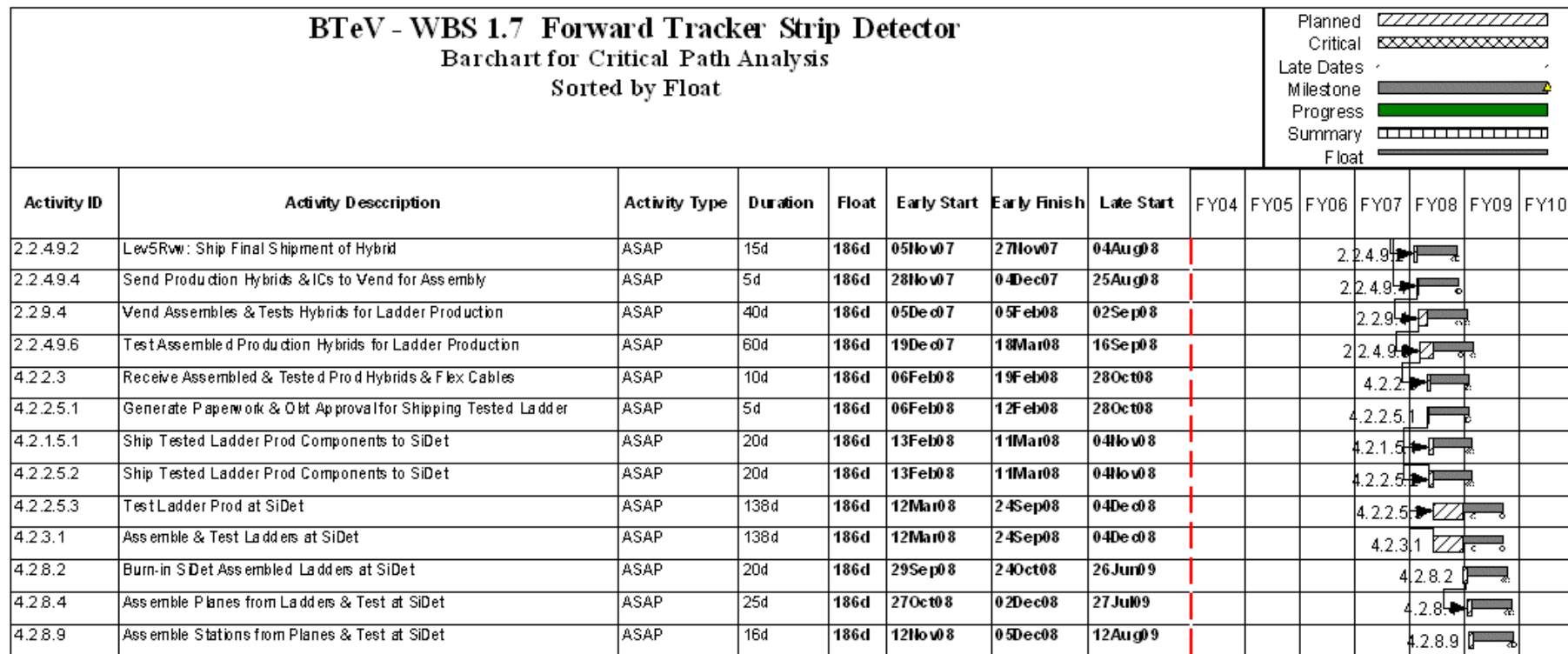
BTeV - WBS 1.7 Forward Tracker Strip Detector

Barchart for Critical Path Analysis

Sorted by Float



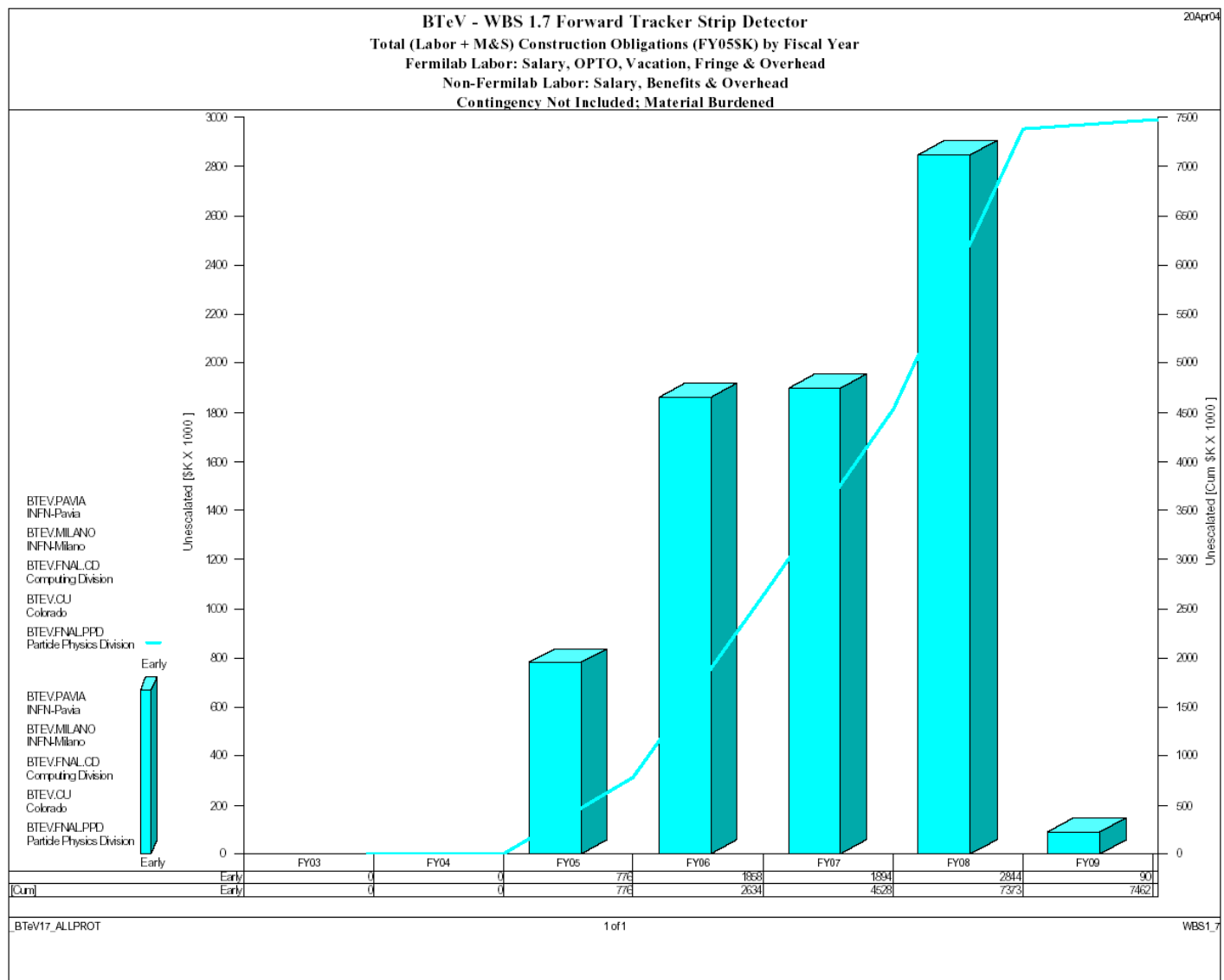
Activity ID	Activity Description	Activity Type	Duration	Float	Early Start	Early Finish	Late Start	FY04	FY05	FY06	FY07	FY08	FY09	FY10
2.1.4.1.1	Revw, Revise & Modify Pass Two IC Proto Des to Provide	ASAP	20d	186d	03Oct05	28Oct05	23Jun06		2.1.4.1.1					
2.1.4.1.2	Schematic Mods to Pass Two IC Proto to Create Final Des	ASAP	25d	186d	31Oct05	06Dec05	24Jul06		2.1.4.1.2					
2.1.4.1.3	Sim Final IC	ASAP	20d	186d	07Dec05	03Jan06	28Aug06		2.1.4.1.3					
2.1.6.1.4	Layout Final IC Design	ASAP	50d	186d	04Jan06	14Mar06	26Sep06		2.1.6.1.4					
2.1.4.1.4	Sim Layout, Incorporate Des Changes & Revise Doc, as necessa	ASAP	20d	186d	15Mar06	11Apr06	07Dec06		2.1.4.1.4					
2.1.6.1.5	Sim Layout, Incorporate Des Changes & Revise Doc, as necessa	ASAP	20d	186d	15Mar06	11Apr06	07Dec06		2.1.6.1.5					
2.1.4.1.7	Lev5Rvw: Rvw Final IC Schems, Sims, Layout & Lad Test Res	ASAP	3d	186d	12Apr06	14Apr06	08Jan07		2.1.4.1.7					
2.1.6.1.8	Lev5Rvw: Rvw Final IC Schems, Sims, Layout & Lad Test Res	ASAP	3d	186d	12Apr06	14Apr06	08Jan07		2.1.6.1.8					
2.1.4.1.9.5	Obt Approvals for & Order Pre-Prod Run of Final ICs	ASAP	10d	186d	17Apr06	28Apr06	11Jan07		2.1.4.1.9.5					
2.1.6.1.10.4	Obt Approvals for & Order Pre-Prod Run of Final ICs	ASAP	10d	186d	17Apr06	28Apr06	11Jan07		2.1.6.1.10.4					
2.1.2.2.3.1	Vend Manufacture & Del Pre-Prod Run of Final ICs	ASAP	60d	186d	01May06	25Jul06	26Jan07		2.1.2.2.3.1					
2.1.2.2.4	Test Pre-Prod Run of Final ICs	ASAP	40d	186d	26Jul06	20Sep06	20Apr07		2.1.2.2.4					
2.1.2.2.5.1	Thinning, Coating & Dicing Tested Pre-Prod IC	ASAP	15d	186d	21Sep06	11Oct06	18Jun07		2.1.2.2.5.1					
2.1.2.2.5.2	Obt Appr for & Transp Tested Pass Three IC Proto (Hyb A	ASAP	10d	186d	12Oct06	25Oct06	10Jul07		2.1.2.2.5.2					
2.2.3.11	Send Proto Hybrids & Pass Three ICs to Vend for Assembly	ASAP	5d	186d	26Oct06	01Nov06	24Jul07		2.2.3.11					
2.2.3.12	Vend Assembles & Tests Hybrids with Pass Three ICs	ASAP	20d	186d	02Nov06	01Dec06	31Jul07		2.2.3.12					
2.2.8.3	Vend Assembles & Tests Hybrids with Pass Three ICs	ASAP	20d	186d	02Nov06	01Dec06	31Jul07		2.2.8.3					
2.2.3.13	Test Assembled Pre production Hybrids for Station Tests	ASAP	40d	186d	04Dec06	31Jan07	28Aug07		2.2.3.13					
2.2.8.4	Test Assembled Pre production Hybrids for Station Tests	ASAP	40d	186d	04Dec06	31Jan07	28Aug07		2.2.8.4					
2.2.3.14	Lev4Rvw: Rvw Preproduction Hybrid Test Data	ASAP	5d	186d	01Feb07	07Feb07	24Oct07		2.2.3.14					
2.2.4.1	Lev5Rvw: Rvw Hybrid Perfance in all the prototyping phases	ASAP	20d	186d	08Feb07	07Mar07	31Oct07		2.2.4.1					
2.2.4.3	Rewrite, if necessary, Hybrid Reqmts & Specs	ASAP	10d	186d	08Mar07	21Mar07	30Nov07		2.2.4.3					
2.2.4.4	Lev5Rvw: Rvw Hybrid Reqmts & Specs Document	ASAP	2d	186d	22Mar07	23Mar07	14Dec07		2.2.4.4					
2.2.4.6	Design Production Hybrids	ASAP	10d	186d	26Mar07	06Apr07	18Dec07		2.2.4.6					
2.2.4.7	Layout Production Hybrids	ASAP	15d	186d	09Apr07	27Apr07	07Jan08		2.2.4.7					
2.2.4.8.1	Manufacture 1st Shipment of Hybrid	ASAP	90d	186d	30Apr07	05Sep07	29Jan08		2.2.4.8.1					
2.2.9.1	Manufacture 1st Shipment of Hybrid	ASAP	90d	186d	30Apr07	05Sep07	29Jan08		2.2.9.1					
2.2.4.8.3	Lev5Rvw: Ship 1st Shipment of Hybrid	ASAP	5d	186d	06Sep07	12Sep07	04Jun08		2.2.4.8.3					
2.2.4.8.5	Perf Accept Test of 1st Shipment of Hybrid	ASAP	5d	186d	13Sep07	19Sep07	11Jun08		2.2.4.8.5					
2.2.4.8.6	Lev5Rvw: Rvw 1st Shipment Hybrid Test Results	ASAP	2d	186d	20Sep07	21Sep07	18Jun08		2.2.4.8.6					
2.2.4.9.1	Manufacture Final Shipment of Hybrid	ASAP	30d	186d	24Sep07	02Nov07	20Jun08		2.2.4.9.1					
2.2.9.3	Manufacture Final Shipment of Hybrid	ASAP	30d	186d	24Sep07	02Nov07	20Jun08		2.2.9.3					



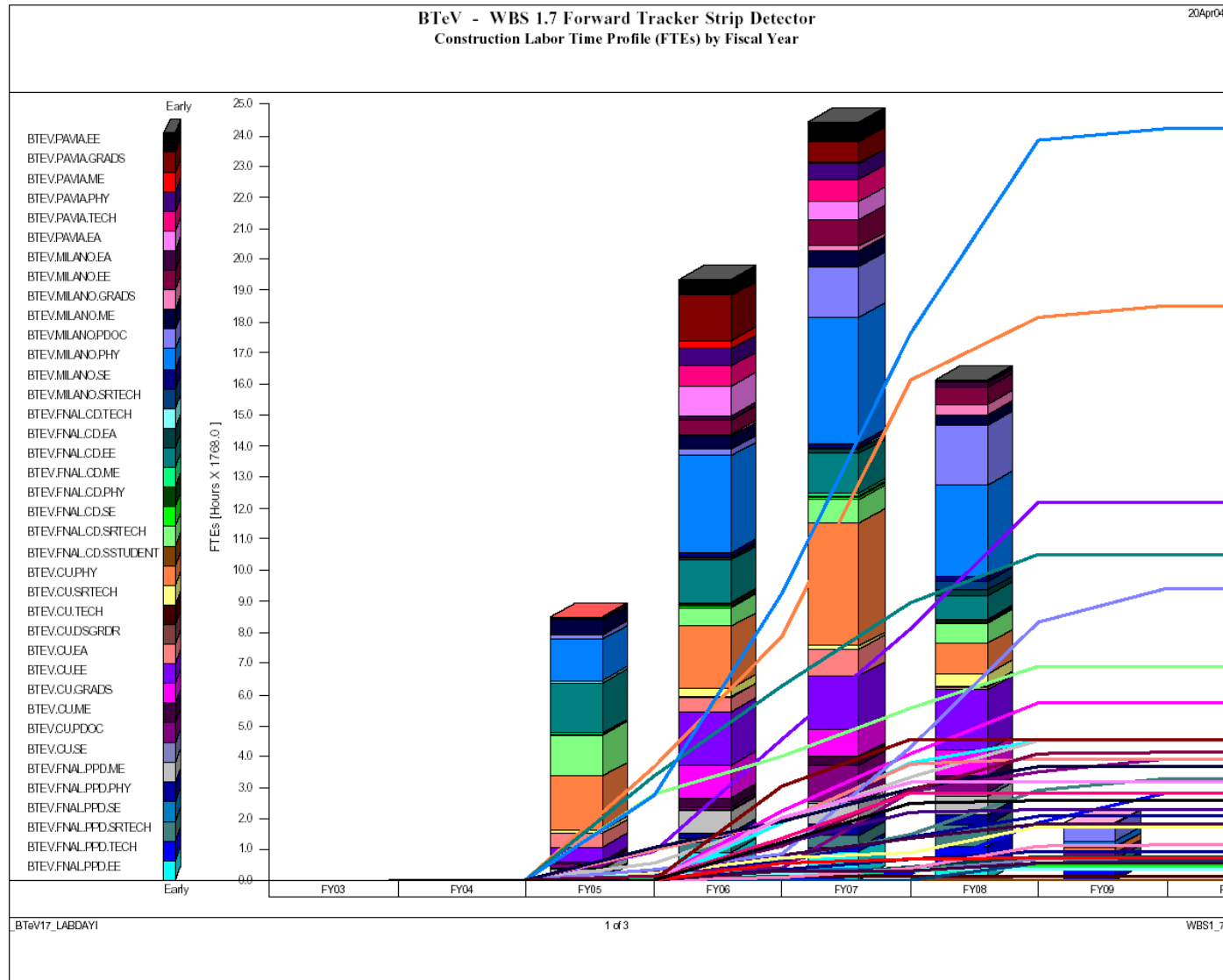
Total Cost

Activity Description	Material & Services Cost	Labor Cost	Base Budget	Labor Contingency (\$)	Materials & Services Contingency (\$)	Total Budget (Base + Contingency)
CONSTRUCTION						
	\$3,638,381	\$3,835,006	\$7,473,388	\$1,237,379	\$1,299,486	\$10,010,253
1 -- Sensors (SM)						
	\$1,039,110	\$48,754	\$1,087,864	\$13,661	\$259,777	\$1,361,304
2 -- Electronics						
	\$1,039,110	\$1,284,333	\$2,570,171	\$344,845	\$396,151	\$3,311,168
3 -- Mechanics & Cooling						
	\$591,133	\$565,236	\$1,156,370	\$218,711	\$315,592	\$1,690,674
4 -- Integration						
	\$702,098	\$1,494,214	\$2,196,312	\$538,516	\$321,905	\$3,056,734
5 -- Detector Subproj Mgmt						
	\$20,200	\$442,468	\$462,668	\$121,644	\$6,060	\$590,372
6 -- Milestones						
	\$0	\$0	\$0	\$0	\$0	\$0

Total Cost by Fiscal Year



Construction Labor by Fiscal Year



- INFN is considering to fund all the M&S of the Micro-Strip system, plus obviously the labor contributed by the Italian groups.
 - This would amount to about 3.6 M\$ of base M&S, plus 0.3 M\$ of base Labor, for a total of about 4 M\$ + contingency.
- Since INFN would provide us with an optimal funding profile, we could remove from the critical path all the activities that in principle should not stay there.
 - We could anticipate several activities on the critical path to FY2005 and benefit of three additional months of float, 12 months instead of 9.
 - We could also anticipate the procurement of the final sensors of eight months, from Oct07 to Feb07, and relax the schedule, which, now, is quasi-critical.

- We just got two minor recommendations:
 1. “Reevaluate the contingency assigned to currency fluctuation for procurements from foreign companies”
 - probably due to a miss-communication between me and the reviewers, since I am using the same contingency rules as in all the other projects;
 2. “Move the engineering costs from WBS item 1.7.6 (Project Management) to their appropriate places”
 - My fault: I already fixed it.